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ABSTRACT

To test whether secondary teachers' attitudes and knowledge of reading skills could be positively changed by inservice education, a university developed a content area reading project that offered instruction to junior high teachers at three school-based sites. The 57 teachers who were involved in the year-long program were provided with objectives for instruction and given multiple opportunities to master those objectives. The inservice model employed in the project involved four components: field-based instruction by university personnel; follow-up supervision in the schools by trained supervisors; instruction using various media and materials to present concepts relevant to content area reading, as well as instruction in designing and using these materials in the content area classroom; and the use of teachers as change agents to encourage and train other teachers to adopt these techniques. In an evaluation of the project, the attitudes and morale of the participating teachers were compared to those of nonparticipating teachers in their buildings. While morale was approximately the same for both groups, project teachers expressed significantly more positive attitudes toward teaching reading in the content area than did the comparison group. In addition, pretest and posttest scores indicated that the reading skills knowledge of project teachers increased significantly. A follow-up study conducted one year later revealed that the effects of the inservice training were retained. (A sample of a measurement instrument used in the project and tables of data are appended.) (FL)

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Combining University and School-Based Inservice Education in Content Area Reading

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Many secondary school teachers and administrators believe that the most effective method of teaching reading in junior and senior high schools is through content area studies. If instruction in reading skills is incorporated into social studies, mathematics, industrial arts, music, and other areas, students will see a need to learn these skills. Immediate application of reading skills in content subjects reinforces skill learning as well as enabling students to acquire content area concepts that are being presented through written materials. In contrast, reading instruction which is offered in a separate class is often not transferred to studying content materials and is, therefore, likely to be forgotten because it is not applied.

Problems exist, however, in implementing the adage, "Every teacher, a teacher of reading," in junior and senior high schools. Content teachers who may be well versed in their subject areas frequently have difficulty individualizing instruction for different reading abilities due to large, changing content classes. Olivero (1976) suggests that "probably less than one percent of the secondary teachers have ever been taught the skills" of diagnosis necessary for individualization of instruction. They may simply not have had any course work in reading methods during their own preservice teacher training experience and may not be aware of how to help students read content materials (Morrison & Austin, 1977). Or they may resist teaching reading skills "by rationalizing that 'reading isn't my subject'" (Axelrod, 1975).

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To test whether secondary teachers' attitudes and knowledge of reading skills could be positively changed by inservice education, the Content Area Reading Project was developed at The Pennsylvania State University and funded by the Pennsylvania Department of Education from January 1, 1976 to June 30, 1977. Instruction in content area reading was delivered at three sites--urban, rural, and suburban--in Pennsylvania to volunteer junior high school teachers during a year-long program, consisting of fifteen bimonthly sessions taught by the authors, each lasting three hours. Three or six semester hours of university credit were available as an option for teachers who wished to register for the credits.

A competency-based format was selected since differences among the teachers were anticipated in entry levels and progress in both attitudes and skills. Teachers were provided the objectives for instruction and given multiple opportunities to master these objectives. Topics covered included diagnosis, linguistic differences, motivation, organization for instruction, reading skills development, materials selection, and evaluation of instruction. Model teaching materials--such as learning centers, skill exercises, and videotapes--were created by Project staff to demonstrate how teachers might construct and use these materials in their classrooms. A professional library was developed for each site so that teachers could complete assigned readings without having to travel to a university library.

The inservice model employed in the Content Area Reading Project included four components:

1. field-based instruction by University personnel in biweekly workshops;
2. follow-up supervision in the schools by trained supervisors, working with teachers during the two weeks between workshops;

3. instruction using various media and materials to present concepts relevant to content area reading, followed by instruction in designing, developing and using these media and materials in the content area classroom; and,
4. the use of teachers as change agents, so that once a group of teachers in a school are trained to incorporate reading instruction in their own classes, they become agents encouraging and training other teachers to adopt these techniques.

Field-based Instruction. The importance of working with teachers on their own turf has been stated frequently. Teachers (and other people) respond better to new ideas when they are in familiar surroundings. The use of regular University faculty, who bring along a sometimes mythological expertise, was identified by the teachers as an important factor to them; it is important that teachers feel the people conducting the inservice have something to say that they couldn't learn at home with a good book. Outside instructors have an important advantage in that they can introduce new and sometimes uncomfortable ideas (or, if you will, create cognitive dissonance) without having to bear the brunt of teacher objections daily. The "expert" can play this role more easily than someone who works in that school on a regular basis. At the same time, these instructors must demonstrate that their expertise includes practical experience, useful and relevant techniques applicable immediately to the classroom, and an understanding of the uniqueness of the particular school(s) and area. Thus, the CARP instructors brought in some theory and research findings, a good many different sources of information, and many different models of concrete techniques for teachers to use. A great deal of flexibility was required in applying the competency-based format in different schools, but the certainty of the given list of competencies provided a constant framework.

With the state-funded Prject ended, its ultimate impact on Pennsylvania is grounded in a state-wide network of trained instructors, who are University faculty in Continuing Education, available to run this program from centers all over the state. The network represents an attempt to find the magic middle ground--University extension faculty who know the area and schools and demonstrate their practical experience. This field-based instruction is a primary component--the interaction of instructors with local concerns adds strength to the program.

Follow-up Supervision. The importance of follow-up to inservice instruction is well established. The great problem with typical inservice is that the visiting expert comes in and delivers his/her message, perhaps with great effect, but it is dropped immediately afterward and teachers go on doing the same thing. The follow-up used in CARP requires a person who is trained in supervision, one who can interact well with teachers and develop mutual respect and trust.

The contact people used in the project were graduate students with training in this area who spent a minimum of one day per week in the schools in the two weeks between workshops. Their duties ranged from helping teachers develop lessons and techniques for the classroom to observing teachers using reading techniques in the classroom. They were even asked occasionally to demonstrate particular techniques. Much of their work was psychological: building teacher confidence to try something new, helping teachers organize classroom time to allow room for reading instruction, helping teachers think through their instructional plans to identify where reading problems are most likely to occur. They did not do teachers' work for them, nor did they give different information from one teacher to the next. However, they found it important to restate information given in the workshops, to interpret and explain assignments, and to reinforce the models given as examples of various techniques.

These in-school supervisors were the first-line evaluators of teachers' work. They assessed teachers' use of reading techniques in their classrooms at the beginning and end of the project. They observed teachers for inclusion of specific reading techniques, at the teachers' invitation, throughout the project. They assessed materials for acceptance by the standards agreed upon between the University faculty and all supervisors. Faculty members retained overall responsibility for evaluation and grading, but the supervisors' assessments were critical. Only they knew the unique situations in given schools and particular classrooms. Therefore, their assessments were usually accepted. In addition, they interacted with the teachers after the assessment, reporting the result and, if necessary, helping the teacher work through an unsatisfactory assignment to "recycle" it, so that on second attempt, the assignment was satisfactory. Recycling is a direct result of the competency-based format and was totally unfamiliar to most teachers. Once they realized that we were serious about doing it over and over until they got it right, these teachers liked the system. They especially appreciated the time and patience exhibited by the in-school supervisors.

In applying this inservice model to a wider network, it seems clear that the in-school supervisor can most easily be drawn from the school district's own personnel, as long as the individual is one who has the respect and trust of the teachers with whom s/he will be working. Other critical variables are open interaction with other professionals, patience, some knowledge of reading, and lots of time.

This last variable, time, is a serious problem. In order for the in-school supervisor to work most effectively with teachers, s/he must be available when they are--during planning periods, lunch, before or after school. On a practical basis, then, the in-school supervisor should be someone with flexible time, such

as a reading supervisor, assistant principal for instruction, elementary or secondary supervisor, curriculum coordinator, etc. A reading specialist or reading teacher within the school can also be effective, if that teacher has released time (e.g., 2 days a week) to work with teachers. In the statewide network currently being formed, the in-school supervisor has run the gamut from reading supervisor to assistant principal to curriculum coordinator, differing from one district to another. Who this in-school supervisor will be and how his/her time will be arranged should be decided well before the beginning of the program.

Instruction and Modeling. The Content Area Reading Project was based on the assumption that teachers can change their methods of instruction to include consciously the teaching of necessary reading skills in their content classrooms. It also assumed that teachers needed to learn about new materials and resources, particularly the use of media, for their own classrooms. Therefore, workshops were planned to model different instructional patterns (lecture, mediated instruction, learning packages, learning centers, grouping in different patterns). In addition, each of the techniques and types of materials was available for teachers to examine as they tried to develop their own.

The use of videotape as an instructional tool, for example, was modeled by the development and use of three different videotapes. One was built into a learning center on vocabulary which was an integral part of the model unit, a social studies unit on the People and Culture of Mexico. Included in the videotape and available in the center were: (1) a series of five worksheets on roots, prefixes and suffixes, the topic of the videotape (all words taken from the unit context); (2) books for additional reading on various reading levels; (3) manipulative materials for word-building games, demonstrated in the videotape and available to use in the center. The integration of reading and content may

well be the most complex and difficult concept for teachers to comprehend and put into practice. They need multiple models and opportunities to get it into their own conceptual frameworks before they can apply it to their own classrooms.

The model materials and techniques were initially produced by the University faculty and Project staff. However, the Project collected samples of each technique from teachers so that we now have a large collection of model materials which have been tried in classrooms, in all subject areas, for junior high grade levels. We have arranged for videotapes of teachers using the techniques, for use as models in the state-wide network.

The in-school supervisor is particularly valuable in helping teachers conceptualize their own content teaching and reading instruction. Because they can see both sides, these supervisors provide the connections necessary for the teachers to become conscious of what they can do with reading, then these same supervisors can help them do it. Such a connection between theory and practice, such a linking, is the goal of most inservice education.

Changing Other Teachers' Behavior. A goal of inservice education has long been to change teachers' behavior. However, it usually stops with the individual teacher, who may or may not accept the change. The Content Area Reading Project aimed to work intensively with a few receptive, volunteer teachers at each site. Once these teachers had developed the skills and attitudes considered important, they were asked to become proselytes, to spread the good word to other teachers in their grade, department or team. Some teachers accepted this task eagerly. Others were reluctant.

Several changes have been made in the Program in this area, as it has become the state-wide network. In future workshops, teachers will now be given specific instruction in some aspects of teacher-to-teacher interaction and the function of the change agent. Breaking down the isolation of each teacher's classroom, suggesting that both teachers and students have common needs, comes

very hard in the traditional secondary school. It seems reasonable to emphasize the common areas and some techniques which have worked for other teachers, and to allow individual teachers to select those techniques which seem to fit their teaching pattern, subject, and personality. Sudden and miraculous changes are not expected nor particularly desired. Slow but continuous change is more realistic and probably more lasting. This means that teachers working as change agents need the same patience as the in-school supervisors. Indeed, teachers who enjoy the change agent role will find themselves performing the same functions and demonstrating many of the same qualities as the in-school supervisors described earlier.

School districts may find it most useful to train a cadre of teachers and other personnel by grade level and subject, and then provide them with time and support to work within several schools besides their own in this change agent role. The University involvement at this level is to provide occasional consultant service, as requested by the district, and to continue to provide materials, models, and other resources as needed for continuing change.

Teacher Skills and Attitudes and Inservice Education. Evaluation of the Content Area Reading Project focused on teacher variables--attitudes, knowledge of reading skills, and implementation of workshop objectives--since changes must occur in teacher variables before student achievement can be affected. Teachers in the three workshop sites were compared in pre and posttesting to other teachers in the same building who did not participate in the workshops on two measures of attitude toward teaching reading in the content areas as well as on a measure of general morale, the Purdue Teacher Opinionaire (Bentley & Rempel, 1973). While morale on the Purdue Teacher Opinionaire remained approximately the same throughout the school year in all sites for both the experimental and comparison groups, significant differences were found on instruments measuring attitudes toward teaching reading in the content areas. On the Statements Survey, a Likert-

type scale (r = .84), significant differences were found at the .05 level. The Situations Survey, a semantic differential scale, yielded three scores, on all of which the experimental group of teachers expressed significantly more positive attitudes than the comparison group ($p < .05$). These included sets of five bipolar adjectives in response to twelve hypothetical classroom situations (Adjectives scale, r = .96); a feasibility scale on which teachers were asked to rate how feasible each situation was (r = .75); and a perceived skill score (r = .91) on which teachers expressed their confidence in implementing the diagnostic-prescriptive strategies demonstrated in the hypothetical situations. (A sample item from each survey is presented in Appendix A.)

Furthermore, on a criterion-referenced knowledge of reading skills test given only to experimental teachers, significant gains ($p < .001$) were made from the pretest to the posttest as well as many more teachers reaching the 80% mastery level on the posttest. Likewise, consultant ratings of the degree of implementation of workshop objectives, obtained through classroom observations before and after the experimental treatment, also showed significant gains ($p < .001$). The results of the Project evaluation are presented in further detail elsewhere (Dupuis & Askov, 1977).

Follow-up Study Conducted One Year Later. Since no formal inservice training was conducted at the three sites during the 1977-78 school year, it was of interest whether the positive gains in attitudes and knowledge of reading skills made during the 1976-77 school year were retained at the end of the 1977-78 school year with no further treatment. Therefore, teachers in the experimental group were retested in May, 1978, with the two attitude surveys and the criterion-referenced knowledge of reading skills test. The Purdue Teacher Opinionaire was not readministered since morale had remained stable during the 1976-77 school year and had not shown a relationship to positive changes in attitudes and skills in content area reading.

The comparison teachers were not retested because their scores had remained fairly stable during the 1976-77 school year, and there was no reason to expect this pattern to change.

The results are shown in Appendix B in Tables 1-8, presenting the means obtained on posttesting in May, 1977, and on the follow-up posttesting in May, 1978, as well as the analyses of variance. No significant differences were obtained between May, 1977, and May, 1978. The small fluctuations in means can be expected due to the standard error of measurement in the test instruments.

From the results obtained, it appears that the effects of this inservice work in content area reading done during one school year were retained one year later without continued formal inservice work. It can be noted, however, that in every case the scores obtained at the suburban site increased rather than decreased during the non-intervention year. It is also in this site that the most administrative support for content area reading instruction was apparent. Nevertheless the gains made in the urban and rural sites during the experimental treatment were retained even with little apparent administrative support. The results are encouraging in suggesting that inservice education of the kind reported here does make a difference in bringing about lasting changes in teachers' attitudes toward content area reading instruction and in their knowledge of reading skills.

The inservice model reported here includes the best of both worlds. It includes university faculty expertise, graduate credit, and facilities for state-wide dissemination with reliable sources of materials. It also includes the immediacy of the school as home-base, plus school-based supervisors in touch with the immediate situation. This inservice model suggests a new partnership between local schools and universities which is long overdue.

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APPENDIX A

Sample item from Statements Survey: Teaching Reading in Content Areas

J.W. Lee, C.J. Young, E.N. Askov, M.M. Dupuis

It is important that teachers be competent in assessing the general reading levels of students.

(a)	(b)	(c)	(d)	(e)
Strongly Disagree	Slightly Disagree	Not Sure	Slightly Agree	Strongly Agree

Sample item from Situations Survey: Teaching Reading in Content Areas

J.W. Lee, C.J. Young, E.N. Askov, M.M. Dupuis

SITUATION: An English teacher is preparing to teach a short story from the anthology suggested in the curriculum guide.

PLAN: The teacher plans to assign those who are competent readers to read the story on their own and engage in several individualized assignments. The less competent readers will read the story in a guided reading lesson during which the teacher will provide considerable help in vocabulary, concept development, and comprehension.

practical _____:_____:_____:_____:_____:_____:_____ impractical

ineffective _____:_____:_____:_____:_____:_____:_____ effective

inefficient _____:_____:_____:_____:_____:_____:_____ efficient

useful _____:_____:_____:_____:_____:_____:_____ useless

desirable _____:_____:_____:_____:_____:_____:_____ undesirable

On the basis of your classroom experience, how feasible would you say the above plan is?

feasible _____:_____:_____:_____:_____:_____:_____ not feasible

How skilled are you at this time for executing a plan like the one described above?

APPENDIX B

Table 1. Means of Junior High Teachers on the Statements Survey

Sites	N	Posttest May, 1977	Follow-up May, 1978
Urban	19	92.6	88.4
Suburgan	19	91.6	92.0
Rural	15	87.1	90.0

Table 2. Site × Time Analysis of Variance on Junior High Teachers' Statements Survey

Source	df	MS	F	P
Sites	2	14.00	.17	> .05
Error (between Ss)	50	83.82	--	
Time	1	1.88	.05	> .05
Site × Time	2	111.79	2.96	> .05
Error (within Ss)	50	37.73	--	

Table 3. Means of Junior High Teachers on the Situations Survey

Sites	N	Adjectives Scale		Feasibility Scale		Perceived Skill Scale	
		Posttest May, 1977	Follow-up May, 1978	Posttest May, 1977	Follow-up May, 1978	Posttest May, 1977	Follow-up May, 1978
Urban	19	369.6	366.4	75.2	71.1	75.7	72.8
Suburban	19	377.7	389.3	74.8	75.7	73.7	75.6
Rural	19	385.9	369.4	74.1	70.1	77.2	71.9

Table 4. Site × Time Analysis of Variance on Junior High Teachers' Situation Survey - Adjectives Scale

Source	df	MS	F	p
Sites	2	178.17	.08	> .05
Error (between Ss)	49	2192.7	--	
Time	1	188.25	.31	> .05
Site × Time	2	1665.3	2.78	> .05
Error (within Ss)	51	597.95	--	

Table 5. Site × Time Analysis of Variance on Junior High Teachers' Situation Survey - Feasibility Scale

Source	df	MS	F	p
Sites	2	33.5	.31	> .05
Error	49	108.86	--	
Time	1	51.56	2.22	> .05
Site × Time	2	50.28	2.16	> .05
Error	51	23.22	--	

Table 6. Site × Time Analysis of Variance on Junior High Teachers' Situation Survey - Perceived Skill Scale

Source	df	MS	F	p
Sites	2	12.67	.10	> .05
Error	49	121.91	--	
Time	1	114.21	3.27	> .05
Site × Time	2	115.57	3.31	.05>p>.01
Error	51	34.91	--	

Table 7. Means of Junior High Teachers on the Criterion-Referenced Skills Test

Sites	N	Posttest May, 1977	Follow-up May, 1978
Urban	19	15.6	13.8
Suburban	19	17.9	18.2
Rural	15	17.2	16.7

Table 8. Site × Time Analysis of Variance on Junior High Teachers' Criterion-Referenced Skills Test

Source	df	MS	F	p
Sites	2	6.17	.48	> .05
Error	49	12.79	--	
Time	1	11.55	2.90	> .05
Site × Time	2	11.30	2.83	> .05
Error	51	3.98	--	